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1. An optical irradiation device comprising an array of light-emitting diodes (LEDs) clustered so that radiation they emit is directed into a beam characterised in that each LED is formed with multiple facets such that the facets of adjacent LEDs adjoin one another in close proximity throughout their length.
2. A device as claimed in claim 1 in which the facets of adjacent LEDs extend substantially parallel to one another.
3. A device as claimed in claim 1 in which the facets of adjacent LEDs abut one another.
4. A device as claimed in claim 1 in which LEDs are arranged in a ring with side facets of adjacent LEDs adjoining one another.
5. A device as claimed in claim 4 in which LEDs are arranged in concentric rings with side facets of adjacent LEDs in each ring adjoining one another.
6. A device as claimed in claim 5 in which the LEDs of adjacent rings have radially directed facets adjoining one another.
7. A device as claimed in claim 4 in which a single LED is located within said ring or innermost concentric ring.

8. A device as claimed in claim 7 in which said single LED has radially directed facets that adjoining facets of the LEDs in said ring or innermost concentric ring.
9. A device as claimed in claim 1 in which the LEDs are regular polygons in cross-section.
10. A device as claimed in claim 9 in which the LEDs are hexagonal in cross-section.
11. A device as claimed in claim 1 in which the facets of the LEDs are polished.
12. A device as claimed in claim 1 in which the facets of the LEDs are provided with a reflective coating.
13. A diode adapted for use in an optical irradiation device as claimed in claim 1.
14. A device as claimed in claim 1, including a light guide for collecting light from the cluster of light emitting diodes.
15. A device as claimed in claim 1, wherein a light guide is provided for each light emitting diode in the cluster.

16. A device as claimed in claim 1 including a light guide for collecting light from the cluster of LEDs, the light guide having an index that varies from one part to another so as to manipulate the light.

17. A device as claimed in claim 1 including a light guide that consists of a few fibres formed individually before being bundled together.

18. A device as claimed in claim 1 including a light guide consisting of shaped fibres packed together so that the packing fraction is reduced.

19. An irradiation device employing LEDs and a tapered light guide to collect radiation emitted by the LEDs and deliver this to an output beam, characterised in that two or more tapered light guides are arranged in series so that successive guides receive radiation from preceding guides, and an LED or group of LEDs is provided at the input end of each guide.

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20. A device as claimed in claim 20 in which each successive guide is provided with a ring of LEDs around the output end of the preceding guide.

21. A device as claimed in claim 1 in which the heat is removed from the LEDs by a heat pipe.

22. A device as claimed in claim 21 in which a plurality of heat pipes is used to transfer heat from the LEDs.
23. A device as claimed in claim 21 in which an annular heat pipe is used so that it can contain energy storage means.
24. A device as claimed in claim 1, including a Peltier device to cool the LEDs.
25. A device as claimed in claim 1 having a pistol grip to contain energy storage means.
26. A device as claimed in claim 1, including a capacitor or supercapacitor to power the device.
27. An optical irradiation device comprising a plurality of LEDs and a heat pipe to cool the LEDs.
28. A hand-held device for curing dental materials including an optical irradiation device as claimed in claim 1.
29. A heat pipe comprising inner and outer walls that extend longitudinally from one end of the heat pipe to the other and define an annular space therebetween containing a material that serves to absorb heat by a phase change, the annular space being divided by

30. A tapered light guide for an optical irradiation device, which light guide is tapered from its input end to its output end and has an intermediate region of minimum diameter in which a bend is formed.